

## Notice of Allowability

Application No.

10/550,411

Applicant(s)

NUNES VICENTE REBORDAO ET AL.

Examiner

Leo Boutsikaris

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 6/25/07.
2. ☒ The allowed claim(s) is/are 1,7-10.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

**LEONIDAS BOUTSIKARIS**  
**PRIMARY EXAMINER**

Leo Boutsikaris, Ph.D., Esq.  
Primary Patent Examiner, AU 2872  
August 20, 2007

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Caleb Pollack (Reg. No. 37,912) on 8/20/2007.

The application has been amended as follows:

#### IN THE CLAIMS

Claim 1 is rewritten as follows:

1. A maskless optical device based on interferometric lithography to generate an interference pattern[s] within selected areas of a photosensitive material ensuring that the surrounding area is not affected by light, producing diffractive optical variable image devices for security, [the device] comprising:

a first optical channel and a second optical channel at an angle for interfering with the photosensitive material; the first optical channel comprising a first imaging lens for producing an image from a first object at an image plane; the second optical channel comprising a second imaging lens for producing an image from a second object at the image plane, and wherein the device complies with the Scheimpflug rule and the Hinge rule; wherein the interference pattern comprises the images of the first and second objects;

Art Unit: 2872

[an in plane holography imaging device comprising an arbitrary number of objects, the images of which when combined, are for building up a final interference pattern; an optical device based on the Scheimpflug and Hinge rules for ensuring adequate superposition between different optical beams in an imaging configuration; and two optical channels for interfering in the photosensitive material with an adequate angle;]

wherein the time needed to register a complete polygonal pattern is linearly proportional to the number of [colors] interference patterns specified for the reference geometry and not to the overall area of the optical device.

Claim 8 is rewritten as follows:

8. The maskless optical device of claim 1 wherein the photosensitive material [can be] is rotated to materiali[s]ze diffractive patterns with different grating orientation.

Claim 9 is rewritten as follows:

9. The maskless optical device of claim 1 wherein the angle between the optical channels is controllable to materiali[s]ze diffractive patterns with different grating orientation.

The following is an examiner's statement of reasons for allowance:

Claims 1, 7-10 are allowable over the prior art of record for at least the reason that even though the prior art discloses holographic lithographic systems, which do not utilize a mask in the proximity of the recording area, the prior art fails to teach or reasonably suggest a maskless optical device based on interferometric lithography, wherein the device complies with the Scheimpflug rule and the Hinge rule, as set forth by the claimed combination.

Art Unit: 2872

The above rules are related to a specific relative orientation of the object, image and lens planes in the holographic recording geometry, and ensure the correct superposition of the projected images at the recording area without the need of a blocking mask.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Leo Boutsikaris whose telephone number is 571-272-2308. The examiner can normally be reached on M-F, 10-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

Application/Control Number: 10/550,411

Page 5

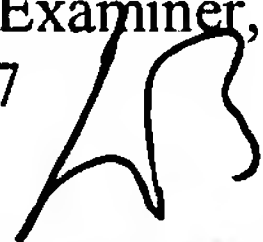
Art Unit: 2872

like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leo Boutsikaris, Ph.D., Esq.

Primary Patent Examiner, AU 2872

August 20, 2007



**LEONIDAS BOUTSIKARIS**  
**PRIMARY EXAMINER**